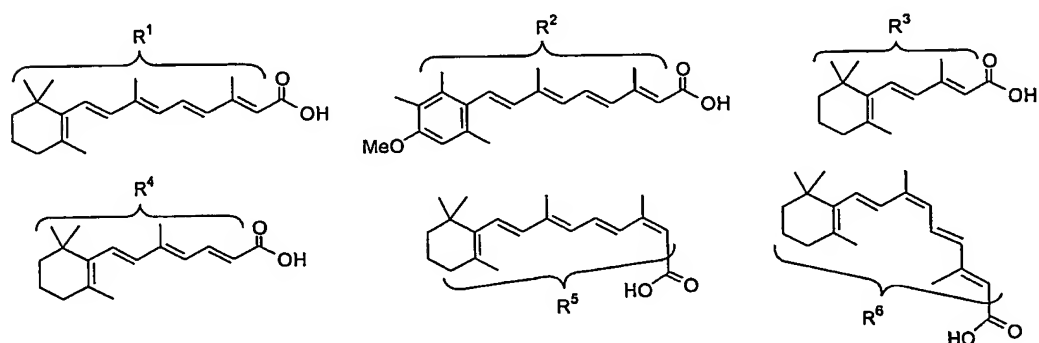
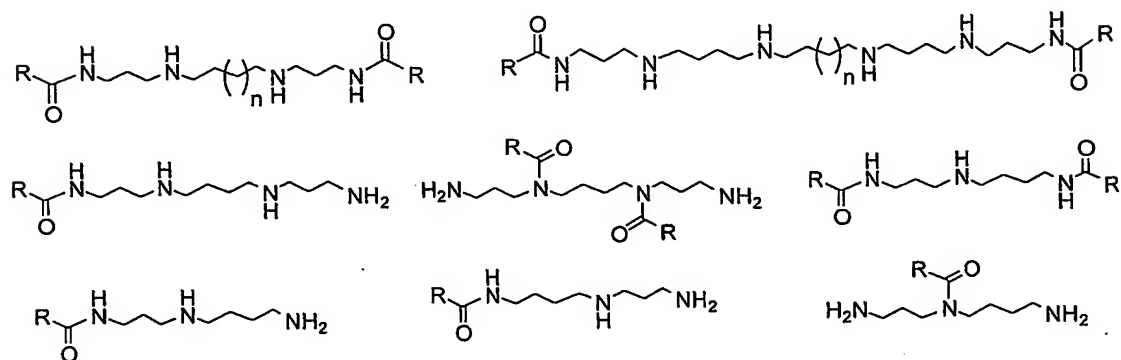


## CLAIMS

1. Conjugates of polyamines with acidic retinoids and in particular polyamine amides in which the R group of the acyl group(s) RCO is one of the retinoid residues R<sup>1</sup>-R<sup>6</sup> pointed out in the following pharmaceutically important acidic retinoids and polyene chain-shortened *all-trans*-retinoic acid analogues :



2. Conjugates of polyamines with acidic retinoids according to claim 1, wherein the polyamines are linear, which conjugates have the following general formulae :

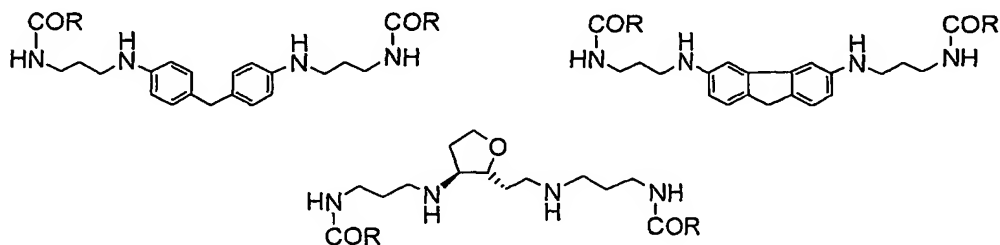


wherein

n is 1 to 9 ;

R is one of the retinoid residues  $R^1$ - $R^6$  of claim 1

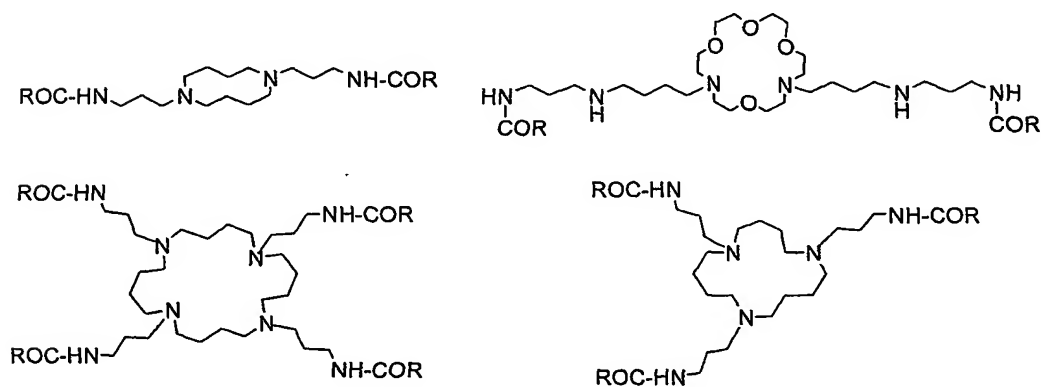
3. Conjugates of polyamines with acidic retinoids according to claim 1,  
wherein the polyamines are conformational restricted, which conjugates  
have the following general formulae:



wherein

R is one of the retinoid residues  $R^1$ - $R^6$  of claim 1

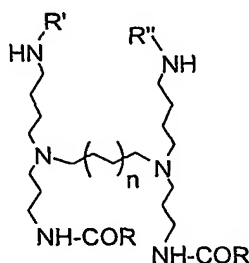
4. Conjugates of polyamines with acidic retinoids according to claim 1,  
wherein the polyamines are cyclic, which conjugates have the following  
general formulae :



wherein

R is one of the retinoid residues  $R^1$ - $R^6$  of claim 1

5. Conjugates of polyamines with acidic retinoids according to claim 1, wherein the polyamines are branched (dimeric), which conjugates have the following general formula :



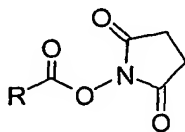
5

wherein

R' is COR or (CH<sub>2</sub>)<sub>3</sub>NHCOR and R'' is COR or (CH<sub>2</sub>)<sub>3</sub>NHCOR ;

R is one of the retinoid residues R<sup>1</sup>-R<sup>6</sup> of claim 1

- 10 6. A method for the preparation of the compounds described in claims 1-5 involving either the following two steps:  
a) synthesis of compounds with the general formula



- 15 wherein R is one of the retinoid residues R<sup>1</sup>-R<sup>6</sup> of claim 1, which involves esterification of acidic retinoids with HOSu in the presence of the coupling agent DCC and purification with flash column chromatography  
b) selective acylation of the primary amino groups of polyamines with the as above obtained compounds,  
20 or the selective acylation of the secondary amino groups of suitably protected polyamines with the acidic retinoids of claim 1 in the presence of a powerful coupling agent

- 25 7. A method for the preparation of the compounds described in claims 1-5 according to claim 6, which method involves the direct selective acylation of the primary amino functions of polyamines or their corresponding

hydrochloride or trifluoroacetate salts with the compounds of step a) of claim 6, wherein the solvent is selected between dichloromethane, chloroform and dimethylformamide and the base, where necessary, is selected between triethylamine and diisopropylethylamine or any other tertiary amine or in general any other non-nucleophilic base.

- 5
8. A method for the preparation of the compounds described in claims 1-5 according to claim 7 where, however, the selective acylation of the primary amino functions of polyamines is effected with any other activated carboxylic acid derivative known to acylate selectively primary amino functions in the presence of secondary ones.
- 10
9. A method for the preparation of the compounds described in claims 1-5 according to claim 6, where the selective mono- or bis-acylation of primary amino functions of polyamines takes place indirectly and involves the following steps :
- 15
- (i) protection of the secondary amino functions of polyamines, bearing the trityl protecting group at their primary amino functions, with the 9-fluorenylmethoxycarbonyl or the trifluoroacetyl group
  - (ii) detritylation
  - (iii) mono- or bis-acylation with the compounds of step a) of claim 6
  - (iv) complete deprotection and purification, if necessary, by flash column chromatography.
- 20
- 25
10. A method for the preparation of compounds described in claims 1-2 according to claim 6 where the selective acylation of the secondary amino functions of polyamines involves the following steps :
- 30
- (i) selective trifluoroacetylation of the primary amino functions of polyamines

(ii) acylation of the secondary amino functions with the acidic retinoids of

claim 1 in the presence of powerful coupling agents, such as PyBroP

5 (iii) removal of the trifluoroacetyl groups by alkaline hydrolysis.

11. Pharmaceutical preparations or products containing the compounds claimed in claims 1-5 for therapeutical applications in humans as well as commercial packages containing as pharmaceutically active substances the

10 above compounds.